

REMARKS

The applicants appreciate the Examiner's thorough examination of the application and request reexamination and reconsideration of the application in view of the preceding amendments and the following remarks.

The Examiner has rejected claims 6-7 and 9-11 under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,487,665 to *Lechner et al.* in view of U.S. Pat. No. 6,574,352 to *Skolmoski*, and further in view of U.S. Pat. NO. 5,737,455 to *Harrington et al.* The Examiner further rejects claim 8 under 35 U.S.C. §103(a) as being unpatentable over *Lechner et al.* in view of *Skolmoski*, in further view of *Harrington et al.* and in further view of JP 10164468A to *Kishimoto*.

The applicants' amended independent claim 6 recites a method of operating image display apparatus, which method comprises combining electronically in a common pixel format a low resolution wide field of view image component from a first source, and a high resolution narrow field of view image component from a second source which is different from the first source, and in which the common pixel format is the pixel format of a high resolution image which forms the second source and from which the high resolution narrow field of view image component is obtained, whereby the high resolution narrow field of view image component is able to be positioned anywhere in a display obtained from the image display apparatus.

For support, see e.g. the applicants' specification at page 2, lines 4-8, and page 7, line 1 through page 8, line 22.

It is therefore clear that with the applicants' claimed invention, *inter alia*, a low resolution wide field of view image component from a first source, and a high resolution narrow

field of view image component from a second source different from the first source, are combined electronically in a common pixel format.

In sharp contrast, and as discussed in further detail below, *Lechner et al.* teaches combining the images optically on the screen. Thus, *Lechner et al.* teaches the opposite of the applicants' claimed invention.

Lechner et al. teaches the use of background image projectors with separate inset image projectors, the images from which are combined optically on the screen surface. *Lechner et al.* also teaches that the background image projector displays an image which has a relatively low resolution compared to the inset image projector. Therefore the background images and the inset images are not combined electronically in a common pixel format. The resolution of the background image displayed on the screen is lower than that of the inset image.

Lechner et al. initially describes his invention column 2, lines 20-24:

In view of the foregoing background, it is therefore an object of the present invention to provide an improved method and system for providing a video display having an inset image of relatively high resolution and a background image of somewhat lower resolution.

Lechner et al. also states, column 2, lines 66-67:

In order to generate an inset image having a smaller size and a higher resolution than the background image...

This confirms that the inset image has a different resolution to the background image which is higher than the background image.

Lechner also states, column 5, lines 1-37:

...the image displayed on the display screens 12 includes a background image having a predetermined size and resolution. The background image is generally generated by a background image projection means 20 as shown in FIG. 2 and block 50 of FIG. 5. The background image projection means preferably

includes a background image projector and, more particularly, a plurality of background image projectors, at least one of which is associated with each display screen. For full color background images, the background image projectors are generally RGB projectors, such as BARCO 1208 projectors or Ampro 3300 projectors, which project a background image having red, green and blue color components. However, a monochrome background image projector which produces a monochromatic background image can also be employed without departing from the spirit and sign of the present invention.

As known to those skilled in the art, the background image projection means 20 is driven by an image generation system 22, some of which are described in a book entitled, *Fundamentals of Interactive Computer Graphics* by Foley et al. which was published by Addison-Wesley Publishing Company in 1982. Accordingly, the background image projection produces the frames of video images which form the background image at a predetermined frequency or frame rate such as 60 hertz.

As also known to those skilled in the art, each background projector 20 includes a predetermined number of video lines, each of which is comprised of a predetermined number of picture elements or pixels. In order to display a relatively large background image for the operator, the individual pixels are projected, and thereby expanded, for display on the associated display screen 12. For example, each pair of video lines typically defines a protection angle of 12 to 18 lines typically defines a projection angle of 12 to 18 arcminutes. Therefore, the resulting background image displayed on the display screens has a relatively low resolution.

This describes how the background image is generated and displayed and confirms that the background image is displayed at a relatively tow resolution. This is low relative to the inset image.

Lechner et al. confirms this, column 5, lines 41-45:

According to the present invention, each inset image has a smaller size and a higher resolution than the background image in order to provide the operator with additional detail in these particular areas of interest.

Lecnner et al. also describes the inset image projector, column 6, lines 1-5:

The inset image projector can be a RGB projector for producing a full color image. However, the inset image projector can also be a monochrome projector for projecting an inset image in a single color, such as green, without departing from the spirit and scope of the present invention.

This again confirms that the inset images are displayed using projection means which is a separate projection means to that which is used to display the background images.

Lechner et al. also describes the method by which the low resolution background images and the high resolution inset images are combined.

At *Lechner et al.* column 7, lines 26-31 it states:

.. the video display system of the present invention preferably includes means for blanking the portion of the background image corresponding to the position of each of the inset images. Thus, conflicting background and inset images are not displayed at the same position of the display screen.

Therefore the background images and inset images are combined on the display screen, the blanking of the portion of the background image being used to allow the inset image to be displayed without any overlap, and as described above the conflicting background and inset images are not displayed on the same portion of the screen.

Also, the background images displayed are of a resolution which is relatively low compared to that of the inset image.

Thus, *Lechner et al.* does not disclose a method of combining images in a common pixel format. The background images and the inset images displayed by *Lechner et al.* have different resolutions on the display screen and therefore different pixel sizes. *Lechner et al.* also does not disclose combining electronically in a common pixel format a low resolution wide field of view

image component from a first source, and a high resolution narrow field of view image from a second source. *Lechner et al.* discloses combining the images optically on the screen.

As noted, in contrast, the invention of the subject application combines electronically the low and high resolution components from the first and second sources. It is this combined image information which is displayed by the projection means of the invention, the images are therefore displayed over the whole image display apparatus at the same resolution, the projection means of the invention display the low resolution and the high resolution content by the same means of projection. The dependent claims identify means by which the low resolution image information contained in the combined image information may be manipulated in order for this low resolution portion of the image to be displayed satisfactorily by the same means which will display the high resolution portion of the image, both portions being displayed at the same high resolution.

Therefore, *Lechner et al.* does not disclose the invention of the application. The applicants' claimed invention combines the low and high resolution portions of the image electronically. It is this electronically combined image information which is fed to the image display apparatus, the projectors, and is displayed by them.

To the extent that the secondary cited references may teach or suggest some form of electronic processing, at the very least they would not appear to be properly combinable with *Lechner et al.* because *Lechner et al.* teaches optically combining images on the screen. In particular, there is no disclosure in *Lechner et al.* (and/or *Harrington et al.*) that leads to or suggests a combination of features that would be the same as the applicants' amended claim 6 above.

Accordingly, independent claim 6 is in condition for allowance. Claims 7-11 depend

directly or indirectly from independent claim 6, and thus are in condition for allowance for at least the foregoing reasons.

CONCLUSION

Each of the Examiner's rejections has been addressed or traversed. Accordingly, it is respectfully submitted that claims 6-11 are in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts at (781) 890-5678.

Respectfully submitted,



Thomas E. Thompson, Jr.
Reg. No. 47,136